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## WHAT IS CLAIMED IS:

1	1.	A method implemented in a computer program to provide a map of site-specific
2	amoun	ts of a soil nutrient to be applied in fertilizer to an agricultural field divided into sites
3	the me	thod comprising:

calculating for the field, from a map of site-specific field characteristic data for the field, a map for the field of site-specific amounts of the soil nutrient needed to produce at each site a maximum possible crop yield; and

subtracting, from the site-specific soil nutrient amounts for maximum yield for the field, site-specific measures of the soil nutrient existing in the field, thereby producing a map of site-specific amounts of the soil nutrient to be applied in fertilizer to the field.

- 2. The method of claim 1, wherein the field characteristic is a measure of biomass produced by the field in one or more past growing seasons.
- 3. The method of claim 2, further comprising: calculating, from a map of site-specific image data taken of the field during one or more past growing seasons, a map of site-specific measures of a leaf area index, the leaf area index serving as the measure of biomass produced by the field.
- 4. The method of claim 2, further comprising: calculating, from a map of site-specific image data taken of the field during one or more past growing seasons, a map of site-specific measures of a vegetation index, the vegetation index serving as the measure of biomass produced by the field.
- 5. 1 The method of claim 1, further comprising:
- calculating, from a topographic map for the field, a map of site-specific measures of a 2 3 soil wetness index, the wetness index serving as the field characteristic.
- 6. The method of claim 1, wherein the soil nutrient is nitrogen. 1
- 7. The method of claim 1, wherein the soil nutrient is phosphorous. 1
  - 8. The method of claim 1, wherein the soil nutrient is potassium.

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- 9. 1 The method of claim 1, wherein the soil nutrient is organic fertilizer.
- The method of claim 9, wherein the organic fertilizer is manure. 10. 1
- 11. The method of claim 1, wherein the soil nutrient is a micronutrient. 1
- 12. The method of claim 11, wherein the micronutrient is Zn. 1
- 13. The method of claim 11, wherein the micronutrient is Fe.
- The method of claim 1, further comprising: 14. 1
  - calculating for the field, from a map of site-specific image data taken of the field in a bare soil state, a map of site-specific measures of soil brightness; and

calculating the site-specific measures of the soil nutrient existing in the field from at least the map of site-specific measures of soil brightness.

- 15. The method of claim 1, wherein the site-specific measures of the soil nutrient existing in the field are calculated from at least a map of site-specific measure of soil electrical conductivity.
- 16. A method implemented in a computer program to provide a map of site-specific amounts of a soil nutrient to be applied in fertilizer to an agricultural field divided into sites, the method comprising:

calculating for the field, from a map of site-specific measures of the biomass of one or more past crops grown in the field, a map for the field of site-specific amounts of the soil nutrient needed to produce at each site a maximum possible crop yield;

calculating for the field, from a map of site-specific image data taken of the field in a bare soil state, a map of site-specific measures of soil brightness;

calculating site-specific measures of the soil nutrient existing in the field from at least the map of site-specific measures of soil brightness;

subtracting, from the site-specific soil nutrient amounts for maximum yield for the field, site-specific measures of the soil nutrient existing in the field, thereby producing a map of site-specific amounts of the soil nutrient to be applied in fertilizer to the field.

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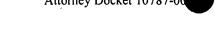
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- 1 17. The method of claim 16, wherein the soil nutrient is nitrogen.
- The method of claim 16, wherein the soil nutrient is phosphorous. 18. 1
- 19. The method of claim 16, wherein the soil nutrient is potassium. 1
- The method of claim 16, wherein the soil nutrient is organic fertilizer. 20. 1
- The method of claim 16, wherein the soil nutrient is a micronutrient. 21. 1
- 22. A computer program, residing on a computer-readable medium, for providing a map 1 of site-specific amounts of a soil nutrient to be applied in fertilizer to an agricultural field 2 divided into sites, the computer program comprising instructions for causing a computer to: 3

calculate for the field, from a map of site-specific field characteristic data for the field, a map for the field of site-specific amounts of the soil nutrient needed to produce at each site a maximum possible crop yield; and

subtract, from the site-specific soil nutrient amounts for maximum yield for the field, site-specific measures of the soil nutrient existing in the field, thereby producing a map of site-specific amounts of the soil nutrient to be applied in fertilizer to the field.

- 23. The computer program of claim 22, wherein the field characteristic is a measure of biomass produced by the field in one or more past growing seasons.
- 24. The computer program of claim 23, wherein the instructions further cause the computer to:
- calculate, from a map of site-specific image data taken of the field during one or more 3 past growing seasons, a map of site-specific measures of a leaf area index, the leaf area index 4 serving as the measure of biomass produced by the field. 5
- 25. The computer program of claim 23, wherein the instructions further cause the 1 2 computer to:
- calculate, from a map of site-specific image data taken of the field during one or more 3 4 past growing seasons, a map of site-specific measures of a vegetation index, the vegetation index serving as the measure of biomass produced by the field. 5

- 1 26. The computer program of claim 22, wherein the instructions further cause the computer to:
- calculate, from a topographic map for the field, a map of site-specific measures of a soil wetness index, the wetness index serving as the field characteristic.
- 1 27. The computer program of claim 22, wherein the soil nutrient is nitrogen.
- The computer program of claim 22, wherein the soil nutrient is phosphorous.
- 1 29. The computer program of claim 22, wherein the soil nutrient is potassium.
- 1 30. The computer program of claim 22, wherein the soil nutrient is organic fertilizer.
  - 31. The computer program of claim 22, wherein the soil nutrient is a micronutrient.
  - 32. The computer program of claim 22, wherein the instructions further cause the computer to:

calculate for the field, from a map of site-specific image data taken of the field in a bare soil state, a map of site-specific measures of soil brightness; and

calculate the site-specific measures of the soil nutrient existing in the field from at least the map of site-specific measures of soil brightness.

33. The computer program of claim 22, wherein the instructions cause the site-specific measures of the soil nutrient existing in the field to be calculated from at least a map of site-specific measure of soil electrical conductivity.